



# Malaria

Transmitted by the female anopheles mosquito, Malaria is a common, potentially fatal parasitic disease that is present in approximately 100 countries - mainly in Africa, South America, Asia and the Pacific. There are five strains of malaria that can infect humans (the most severe is caused by Plasmodium falciparum) and transmission occurs mainly between sunset and sunrise. There is no vaccine; only preventative anti-malaria drugs and mosquito bite avoidance.

Malaria remains a major problem in the world's tropical regions. Each year, as many as 250 million new cases occur world-wide and more than 800,000 people die from malaria. Thousands of cases are recorded among travellers.

## Malaria checklist

When considering the risks of malaria it's important to:

- Know the malaria-infected areas of any countries to be visited.
- Be familiar with all the insect bite-avoidance measures available - and practice them.
- Seek medical advice prior to travel regarding anti-malarial (prevention) medication options, including how to take medication so as to maximise its effectiveness and minimise any possible side-effects. For some travellers, malaria treatment medication may be recommended to treat the disease as adequate medical facilities may not always be available.
- Seek medical attention promptly if malaria infection is suspected - even if you have been taking anti-malaria medication.

## What is it?

Malaria is a parasitic disease spread by the female Anopheles mosquito. There are five species of plasmodium (malaria) parasites that can infect humans:

- Falciparum
- Vivax
- Ovale
- Malariae
- Knowlesi

Falciparum is the most serious and causes 95% of malaria deaths.

The different strains can only be distinguished by microscopic examination of the blood.

After being released into the blood stream, the malaria parasites travel to the liver to begin cycles of reproduction. This process lasts 6-12 days, depending on the species. The infected person will still feel well during this incubation period.

Each malaria organism grows into a large cell containing thousands of malaria parasites. These burst, releasing the parasites into the blood stream where they enter red blood cells and again start to multiply. The bursting of the infected red blood cells corresponds with the onset of typical malaria symptoms – high fever, shivering and sweating. Symptoms can be variable and non-specific and may include headaches, lethargy,



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muscle pains, abdominal discomfort, diarrhoea, coughing, jaundice (yellowing of the skin), confusion and, in latter stages, possible coma and death.

Malaria symptoms can be difficult to distinguish from influenza or other tropical diseases such as dengue fever, travellers' diarrhoea or typhoid fever. Essentially, any febrile illness which occurs following travel to a malaria-infected area should be considered to be malaria until proven otherwise. A thorough medical assessment is essential. Symptoms usually occur one to three weeks after infection but can occur up to a year following exposure to the disease.

Malaria may occur even when taking anti-malarial tablets. Anti-malaria medication is not designed to prevent infection, rather to prevent a classic, potentially fatal case of the disease.

While diagnosis is achieved with a blood test, several tests may be required. Treatment may involve a regime of one or more medications administered in a clinical setting. Generally, local doctors and medical clinics practicing in malaria-infected regions are experienced in treating the disease and will recommend an appropriate course of medication.

### Where is it found?

Malaria transmission occurs in large areas of tropical countries: Central and South America, Sub-Saharan Africa, the Indian Subcontinent, Southeast Asia, the Middle East and parts of the Pacific.

Transmission is generally higher in rural areas (though urban cases occur in many cities, notably in India and Africa) and during the wet season when mosquito populations increase.

Advice concerning the local malaria risk is essential for all travellers.

### Risk to travellers

The risk of malaria to travellers may vary markedly from one area to another and also varies with season, length of stay, type of accommodation, extent of outdoor activities and other factors. Malaria is usually not a risk at altitudes above 1800 metres but this may differ by country. There are some groups who are at particular risk of getting severe malaria. Children under five years and pregnant women should consider the risks carefully before travelling to malarial areas.

### Prevention of malaria

Life-threatening cases of malaria can be prevented by:

- Awareness of malaria-infected areas of the trip.
- Preventing mosquito bites (see separate section)
- Taking anti-malarial medication, when appropriate.

### Anti-malaria medications

There are several different types of medication available to prevent malaria. The appropriate choice should be determined by considering:



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- areas to be visited and the type of malaria present.
- nature and length of trip being planned.
- traveller's medical history.

No anti-malarial medication is 100% effective - preventing bites through the use of insect repellent and a bed net, if required, remains crucial. There is no vaccine available. Local populations in malarial areas usually have partial immunity and may therefore be less susceptible than travellers.

Each anti-malarial medication has advantages and disadvantages. The options are outlined below to provide a better understanding of why each is recommended in different circumstances.

There are possible side effects with all medications. Usually these are not serious, but it is advisable to be aware of the possibility of uncommon, but potentially serious reactions which should be discussed with your Travelvax clinic or other travel health provider.

### **Mosquito avoidance measures**

The risk of insect-borne diseases is greatly reduced by [minimising the number of bites](#) you receive. In the tropics, mosquitoes not only spread malaria, but also other diseases such as dengue fever, Japanese encephalitis and Yellow fever. Ticks and sand flies can also spread disease, both in the tropics and other regions of the world.

Most mosquitoes feed predominantly at dusk and dawn. The malaria-carrying Anopheles mosquitoes are night feeders and are active from dusk till dawn. However Aedes mosquitoes, which transmit Dengue fever and Chikungunya, bite mainly during the day (but they may also bite at night in brightly lit surroundings).

#### **Some of the avoidance measures recommended by Travelvax include:**

- Wearing long-sleeved shirts and trousers during risk times (light colours are better than dark).
- Avoiding scents and perfumes – they attract mosquitoes.
- Applying mosquito repellents containing 30% DEET, Citriodiol (oil of lemon eucalyptus) or Picaridin to exposed areas of the skin, especially after swimming or if you have been perspiring. Be sure to treat all exposed skin.
- Sleeping under a mosquito net if not in screened or air-conditioned accommodation.
- Using the insecticide Permethrin to impregnate bed nets and clothing (available from your nearest Travelvax clinic). Safe for use near children. Call 1300 360 164 for more advice.

**NB.** Using essential oils and taking garlic or vitamin B1 has not been proven to provide effective protection.

**Travelvax Australia has extensive advice on malaria and mosquito avoidance measures for your trip. Call 1300 360 164 for the location of your nearest clinic.**